

CLAIMS

The invention claimed is:

- 1 *Taught by prior art except 20 kHz* 1. A method for stimulating a human cochlea in response to a sound, comprising:
 2 generating an electrical sound signal in response to the sound;
 3 generating an electrical analog carrier signal having a frequency greater than 20 kHz;
 4 modulating the carrier signal with the sound signal to generate a modulated signal;
 5 and
 6 applying the modulated signal to an electrode that is coupled with the cochlea.

1 *Sub D1* 2. The method of claim 1, wherein modulating is by amplitude modulation.

1 3. The method of claim 1, wherein modulating is by frequency modulation.

1 4. The method of claim 1, wherein the electrical analog carrier signal has a
 2 frequency of at least 32 kHz.

1 5. The method of claim 4, wherein modulating is by amplitude modulation.

1 6. The method of claim 4, wherein modulating is by frequency modulation.

- 1 *all prior art except 20 kHz* 7. A cochlear implant system for a patient's cochlea comprising:
 2 at least one electrode for coupling with the patient's cochlea;
 3 an internal coil for implanting in the patient to drive the electrode;
 4 a microphone for outputting electrical sound signals in response to external sounds;
 5 an oscillator for generating an electrical analog carrier signal having a frequency
 6 greater than 20 kHz;
 7 a modulator for modulating the carrier signal with the sound signals to generate a
 8 modulated signal; and
 9 an external coil for magnetically coupling the modulated signal to the internal coil.

1 *Sub D1* 8. The system of claim 7, wherein the modulator is an amplitude modulator.

Sub
D1

9. The system of claim 7, wherein the modulator is a frequency modulator.

1 10. The system of claim 7, wherein the electrical analog carrier signal has a
2 frequency of at least 32 kHz.

1 11. The system of claim 10, wherein the modulator is an amplitude modulator.

1 12. The system of claim 10, wherein the modulator is a frequency modulator.

1 13. A driver for driving an at least partially implanted cochlear implant system
2 having at least one electrode coupled with the patient's cochlea and an internal coil for
3 driving the electrode, the driver comprising:

4 a microphone for receiving external sounds and outputting a corresponding electrical
5 sound signal;

6 an oscillator for generating an electrical analog carrier signal having a frequency
7 greater than 20 kHz;

8 a modulator for modulating the carrier signal with the sound signal to generate a
9 modulated signal; and

10 an external coil for coupling the modulated signal to the internal coil.

1 14. The driver of claim 13, wherein the modulator is an amplitude modulator.

1 15. The driver of claim 13, wherein the modulator is a frequency modulator.

1 16. The driver of claim 7, wherein the electrical analog carrier signal has a
2 frequency of at least 32 kHz.

1 17. The driver of claim 16, wherein the modulator is an amplitude modulator.

1 18. The driver of claim 16, wherein the modulator is a frequency modulator.